

**What is Claimed Is:**

1. A skin cleanser comprising a chelating agent, a pH buffer, and a detergent,  
5 wherein the amounts of the chelating agent and the detergent relative to each  
other are selected to allow the chelating agent and the detergent to  
synergistically cooperate to enhance antimicrobial activity of the skin cleanser  
when in aqueous solution.
2. The skin cleanser of Claim 1, further comprising a carrier.  
10
3. The skin cleanser of Claim 1, further comprising an antimicrobial agent, or a  
combination of antimicrobial agents.
4. The skin cleanser of Claim 1, further comprising an anti-inflammatory agent.  
15
5. The skin cleanser of Claim 1, wherein the chelating agent is selected from the  
group consisting of ethylenediaminetetracetic acid (EDTA), triethylene  
tetramine dihydrochloride (TRIEN), ethylene glycol-bis (beta-aminoethyl  
ether)-N, N, N', N'-tetracetic acid (EGTA), diethylenetriamin-pentaacetic  
20 acid (DPTA), triethylenetetramine hexaacetic acid (TTHA), deferoxamine,  
Dimercaprol, edetate calcium disodium, zinc citrate, penicilamine succimer  
and Editronate.
6. The skin cleanser of Claim 1, wherein the chelating agent is  
25 ethylenediaminetetracetic acid (EDTA).
7. The skin cleanser of Claim 1, wherein the pH buffer is Tris (hydroxymethyl)  
aminomethane base.
- 30 8. The skin cleanser of Claim 1, wherein the detergent is cocamidopropyl  
betaine.

9. The skin cleanser of Claim 2, wherein the carrier is an aqueous carrier.
10. The skin cleanser of Claim 4, wherein the anti-inflammatory agent is dexamethasone.
- 5
11. The skin cleanser of Claim 3, wherein the antimicrobial agent is a  $\beta$ -lactam, an aminoglycoside, a vancomycin, a bacitracin, a macrolide, an erythromycin, a lincosamide, a chloramphenicol, a tetracycline, a gentamicin, an amphotericin, a cefazolin, a clindamycin, a mupirocin, a nalidixic acid, a sulfonamide and trimethoprim, a streptomycin, a rifampicin, a metronidazole, 10 a quinolone, a novobiocin, a polymixin, a gramicidin, clomtrimazole, miconazole, natamycin, amphotericin B, cuprimycin, enilconazole, fluconazole, haloprogin, ketoconazole, nystatin or tolnaftate, or a mixture thereof.
- 15
12. The skin cleanser of Claim 2, wherein the concentration of the chelating agent is between about 5 mM and about 250 mM.
13. The skin cleanser of Claim 2, wherein the concentration of the pH buffer is 20 between about 5 mM and about 250 mM, and the cleanser has a pH of between about 6.0 and about 9.0.
14. The skin cleanser of Claim 2, wherein the concentration of the detergent is between about 1% and 30%, by volume.
- 25
15. The skin cleanser of Claim 2, further comprising an antimicrobial agent having a concentration between about 1  $\mu$ g/ml and about 5 mg/ml.
16. The skin cleanser of Claim 2, comprising about 8 mM of a chelating agent, 30 about 20 mM of a pH buffer and about 10%, by volume, detergent.
17. The skin cleanser of Claim 16 having a pH from about 6.0 to about 9.0.

- 18     The skin cleanser of Claim 16, wherein the chelating agent is  
ethylenediaminetetracetic acid (EDTA), the pH buffer is Tris  
(hydroxymethyl) aminomethane base and the detergent is cocamidopropyl  
5     betaine.
19.     The skin cleanser of Claim 1, further comprising a stabilizer.
20.     The skin cleanser of Claim 19, wherein the stabilizer is scorbic acid.
- 10     21.     The skin cleanser of Claim 1, further comprising a colorant.
22.     The skin cleanser of Claim 1, further comprising a perfume.
- 15     23.     A method of cleansing a surface comprising the steps of:  
           applying a skin cleanser to a surface, said skin cleanser comprising a  
           chelating agent, a pH buffer, a detergent and a carrier, wherein the skin  
           cleanser has antimicrobial activity, and wherein the amounts of the  
           chelating agent and the detergent are selected to allow the chelating  
20     agent and the detergent to synergistically enhance the antimicrobial  
           activity of the skin cleanser;  
           leaving the skin cleanser on the surface for sufficient time to loosen  
           contaminants on said surface, whereby the chelating agent  
           synergistically cooperates with the detergent to reduce the amount of  
25     contaminants on the surface; and  
           removing the skin cleanser from the surface.
24.     The method of Claim 23, wherein the skin cleanser is applied to the skin  
surface of an animal.
- 30     25.     The method of Claim 24, wherein the skin cleanser is applied to the external  
surface of the ear of the animal.

26. The method of Claim 23, wherein the skin cleanser is applied to an inanimate surface.
- 5 27. The method of Claim 23, wherein the skin cleanser is applied to the hair of an animal.
28. The method of Claim 23, further comprising the step of applying an antimicrobial agent to the surface.
- 10 29. The method of Claim 23, wherein the skin cleanser further comprises an antimicrobial agent.
- 30 30. The method of Claim 28, wherein the antimicrobial agent is applied after the skin cleanser, and wherein the antimicrobial agent is applied with a chelating agent, and wherein the chelating agent synergistically cooperates with the antimicrobial agent to reduce a microbial population of the skin surface
- 15 31. The method of Claim 23, wherein the chelating agent is selected from the group consisting of ethylenediaminetetracetic acid (EDTA), triethylene tetramine dihydrochloride (TRIEN), ethylene glycol-bis (beta-aminoethyl ether)-N, N, N', N'-tetracetic acid (EGTA), diethylenetriamin-pentaacetic acid (DPTA), triethylenetetramine hexaacetic acid (TTHA), deferoxamine, Dimercaprol, edetate calcium disodium, zinc citrate, penicilamine succimer and Editronate, and has a concentration between about 1 mM and about 250 mM.
- 20 32. The method of Claim 30, wherein the chelating agent applied with the antimicrobial agent is about 8 mM EDTA.
- 25 33. The method of Claim 23, wherein the pH buffer is Tris (hydroxymethyl) aminomethane base having a concentration between about 5 mM and about
- 30

250 mM.

34. The method of Claim 33, wherein the pH buffer is about 20mM Tris.
- 5 35. The method of Claim 23, wherein the detergent is cocamidopropyl betaine having a concentration of about 10%, by volume.
36. The method of Claim 23, wherein the skin cleanser comprises about 8mM EDTA, about 20 mM Tris and about 10% cocamidopropyl betaine.
- 10 37. The method of Claim 28, wherein the antimicrobial agent is a  $\beta$ -lactam, an aminoglycoside, a vancomycin, a bacitracin, a macrolide, an erythromycin, a lincosamide, a chloramphenicol, a tetracycline, a gentamicin, an amphotericin, a cefazolin, a clindamycin, a mupirocin, a nalidixic acid, a sulfonamide and trimethoprim, a streptomycin, a rifampicin, a metronidazole, a quinolone, a novobiocin, a polymixin, a gramicidin, clomtrimazole, miconazole, natamycin, amphotericin B, cuprimycin, enilconazole, fluconazole, haloprogin, ketoconazole, nystatin or tolnaftate, or a mixture thereof.
- 15 38. The method of Claim 23, wherein the skin cleanser comprises about 8mM EDTA, about 20 mM Tris, about 10% cocamidopropyl betaine and an antimicrobial agent having a concentration of between about 1  $\mu$ g/ml and about 5 mg/ml.
- 20 39. The method of Claim 23, wherein the skin cleanser is added to a medical dressing before contacting the skin surface.
40. A kit comprising a vessel containing a skin cleanser comprising a chelating agent, a pH buffer, and a detergent, wherein the amounts of the chelating agent and the detergent relative to each other are selected to allow the chelating agent and the detergent to synergistically cooperate to enhance antimicrobial activity of the skin cleanser when in aqueous solution, and
- 30

packaging material comprising instructions for preparing the skin cleanser as an aqueous solution and contacting said cleanser with a skin surface.

5      41.      The kit according to Claim 40, wherein the skin cleanser further comprises an antimicrobial agent, and further comprises instructions for using the antimicrobial agent with the skin cleanser to clean and sanitize a skin surface.

42.      The kit according to Claim 40, further comprising instructions for using the skin cleanser to reduce otitis externa of an animal or human.

10

43.      The kit according to Claim 40, further comprising a medical dressing configured to receive the cleanser and instructions for using the medical dressing to deliver the cleanser to the skin surface of an animal or human.